

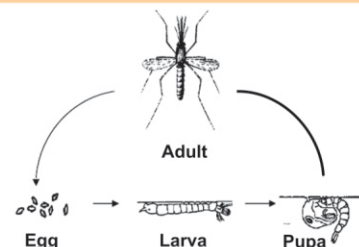
Sustainable Sanitation Management

Unhygienic conditions, stagnant water bodies, open sewers and canals, marshy areas, over-watered lawns and recreational landscapes are the breeding grounds for mosquitoes. These blood-sucking flies are a menace for mammals, including humans. They are responsible for a number of **viral** (dengue fever, yellow fever, chikungunya, encephalitis, filariasis, west nile etc) and **parasitic diseases** (malaria, tularaemia etc). Apart from being a human health hazard, it also causes economic losses and excessive usage of insecticides which imbalances the ecology.

Mosquito control with Renerzyme

It appears that controlling of mosquitos will be effective if the control is exercised at egg and larvae stages. **Mosquito Breeding Stage (MBS)** is the time to control mosquitos. MBS has eggs and larvae, which has limited mobility and feeding mechanism.

Larvae feed on dead organic matter. If a competition is provided to larvae for food, we can control its breeding. Addition of **Renerzyme** - a Mixed Microbial Inoculum for food competition and also to infuse natural enzymes and bio-chemicals as Anti-feedant will reduce eggs' hatchability and ultimately breeding.



Renerzyme Advantages :

- Digests local organic matter which is food for larvae and hence making larvae more vulnerable.
- Acts as a temporary pH buffering agent so as to simulate a condition of threat so that the newer eggs do not hatch.
- Eventually digests the eggs that do not hatch and hence minimising the probable population of mosquitoes.
- Phytochemical constituents in the culture makes it a mosquito repellent.

Method of Renerzyme Application :

1. Find out the possible mosquito breeding places like,
 - a.) Stagnant water bodies
 - b.) Aquatic plants
 - c.) Holes of tree trunks during monsoon
 - d.) or in the leaf-axils of bromeliads etc.
2. Prepare 2% solution of **Renerzyme** inoculum.
3. Spray the solution mentioned in point number 2, over the possible mosquito breeding sites. Please ensure to cover 100% surface area of such sites.
4. Frequency of spraying: a) For first month: Twice a week, b) From second month: Once a week.

Fire & Odour Management

When MSW is dumped...

- It creates anaerobic conditions.
- pH of MSW remains between 8.00 & 9.00.
- Variable food & moisture contents lead to uncontrolled decomposition.
- Microbes responsible to generate H₂S, Methane & Ammonia etc will be most active.
- H₂S (Hydrogen Sulphide) & Ammonia are responsible for Foul Odour.
- When Methane contents goes above 100 ppm, it becomes a fire hazard.
- Water and C&D Waste are being used for Fire Control, which enhances anaerobic conditions to aggravate Fire after few days.



Dump Fire After Water Application



Dump Fire After **Renerzyme** Application

Science behind Renerzyme advantages

- **Renerzyme** is a Mixed Microbial Culture of GRAS (Generally Recognized As Safe) species of **Lactic Acid Bacillus (Lab)** & **Saccharomyces cerevisiae**. It has the capabilities to dominate local micro-flora and lead the decomposition of MSW in an eco-friendly manner.
- **Renerzyme** carries enzymes, amino acids, metabolites etc to *change the micro climate of ecology*.
- **Renerzyme** decomposes food waste and produce Organic Acids to reduce MSW pH, which leads to suppress microbial growth of species who produces Ammonia, Hydrogen Sulphide and Methane.
- Ammonia & Hydrogen Sulphide are responsible for Foul Odour.
- Hence, **Renerzyme** is effective in controlling
 - a) Foul Odour
 - b) Methane Generation and
 - c) Enhancing the decomposition of MSW.

Renerzyme Applications :

- 1-2% solution of **Renerzyme** is prepared in water. For this purpose, treated sewage water / seawater also can be used.
- Dilute solution is sprinkled over dump, even in case of **fire / flaring** too.
- It **suppresses** inherent microbes which generate **ammonia, H₂S and methane**.
- Repeated applications will be required, depending upon the size and shape of the dump.

Note : 1% solution of **Renerzyme** is prepared in potable water, can treat 12-16 square meter of area.

Sustainable Waste Management

Some serious issues responsible for non-utilization of MSW are ...

- Composition varies from ward-to-ward
- Foul odour with fly & insects
- Leachate, a major threat to ground water quality
- Variable moisture contents
- Increasing share of non bio- degradable
- Untreated Segregation of non bio-degradable is unhygienic & non-viable

Composting Yields are low (8 – 10%), so projects become commercially un-viable

Renerzyme Advantages :



Science behind Renerzyme application.....

COMPOST & RDF :

Renerzyme is a Mixed Microbial Culture of GRAS (Generally Recognized As Safe) species of **Lactic Acid Bacillus (LAB)** & **Saccharomyces cerevisiae**. It employs a unique **'Bio-Drying'** technique, which controls MSW pH, foul odour & fly in 24 hours. It generates temperature up to 80° centigrade by biological activity. Controlled pH & temperature in presence of moisture digest biomass. Moisture can be brought to less than 20% in 8-12 days.

Free-Flow biomass with low moisture is segregated for removal of metal, glass, inert material etc. Segregated biomass is passed through Double-Acting shredder for size reduction. Shredded biomass is conveyed for gravity separation for dust removal & size separation. Cleaned biomass is fed to Briquette Press for forming Biomass Briquette. The process produces FCO specified 'Compost' also.

For **1 MT** of Mixed MSW, one need **600 ml** of **Renerzyme**

BIOGAS GENERATION :

Biogas is generally produced from food waste & animal dung. **RENERZYME** treated Cleaned biomass can also be used for generating 'Biogas'. By adopting this process, one can omit 'acidogenesis' step & can directly start the process from 'methanogenesis' step. **Renerzyme** can reduce batch time up to 50%.

Along with **Renerzyme**, IEC provides products to manage pH of slurry & to enhance methanogen population to enhance gas production.

UNIQUE FORMULATION :

Based on knowledge of advanced microbiology, **Renerzyme** is a consortium of highly active, and functionally competent microbes-anaerobes, aerobes and facultative anaerobes-which are judiciously chosen and co-cultured using a proprietary media and process.

Manufactured By :



Marketed By :



+91 98254 60591

info@gurukrupainternational.com

giproduct3@gmail.com

www.gurukrupainternational.com